

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Delcroix et al.

For: Crucible Cover for Aluminothermic Reaction

Serial No.: 10/524,390

Filed: February 14, 2005

Attorney Docket No.: MART0870US

I certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on May 6, 2005.

Howard F. Mandelbaum

Dated: May 6, 2005.

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Commissioner for Patents  
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Sir:

**INFORMATION DISCLOSURE STATEMENT**

Applicant wishes to call to the attention of the Examiner the following prior art. Copies of the references are enclosed as is a completed form PTO-1449.

1. **German Patent Application DE 198 22 851 A and corresponding U.S. Patent No. 6,484,792.**

No English translation of German Patent Application DE 198 22 851 is available other than the text of corresponding U.S. Patent No. 6,484,792. The following comments apply to both references.

German Patent Application DE 198 22 851 A and corresponding U.S. Patent No. 6,484,792 disclose a crucible which, with reference to Fig. 2, has a small continuous disc-shaped cover (14), carried

by a large disc-shaped cover (11) and connected thereto by a filter (14b) which surrounds an opening (11a) in the large cover (11). Opening (11a) serves as an exit for the gases emitted by the thermite reaction in the crucible, which are filtered by filter (14b) before reaching the ambient environment. The way small cover (14) is connected to large cover (11), by means of filter (14b), is not disclosed in this document. However, it is clear that there is some kind of mechanical connection between them, e.g. through gluing of filter (14b) to both covers (11, 14). Otherwise, the weight of small cover (14) would clearly not be sufficient for allowing it to resist the pressure of the gases, which would blow it away, thus allowing the gases to reach the ambient environment directly, without filtering, i.e. with all the hot particles and the dust they carry with them. It should be noted that the thermite reaction and the resultant emission of hot gases are extremely violent. These references thus cannot teach that a closed cover resists the pressures of gases only by its own weight as claimed in amended independent claim 1.

## **2. European Patent Application EP 0 407 240**

No English translation of European Patent Application EP 0 407 240 is available other than the text of corresponding U.S. Patent No. 5,151,202. The following comments apply to both references.

European Patent Application EP 0 407 240 A and corresponding U.S. Patent No. 5,151,202, now assigned to the assignee of the instant Patent Application, disclose a crucible which carries an open cover (85), i.e. a cover having vents (97)

for allowing exit of the gases therethrough. The open cover (85) is retained on the crucible by means of its own weight and the weight of an upper filtering cap (103) which it supports, but the pressures to which it is subjected are much lower than the pressures which the closed cover of the claimed invention must resist. The pressure in the crucible, under the open cover, cannot reach as high a value as under a closed cover insofar as the gases can escape through the vents. The claimed invention teaches, for the first time, a closed cover retained on a crucible only by means of its weight, i.e. without any added connection means, an unobvious teaching in view of the violence of the thermite reaction and of the resulting emission.

It is clear that DE 198 22 851 and EP 0 407 240, whether considered separately or in combination, do not teach one having ordinary skill in the art of thermite welding to have a closed cover to resist the pressures which result from the emission of gases during the thermite reaction only by its own weight.

### **3. German Patent DE 196 35 173C.**

This German patent was cited as relevant against original PCT claim 12 in combination with German Patent Application DE 198 22 851 A. No English language translation is known to be available. However, German Patent Application DE 198 22 851 is clearly not directed to a cover for a crucible let alone a closed cover retained by its own weight. It merely appears to pertain to a chemical composition for a crucible.

**4. U.S. Patent No. 4,881,677**

U.S. Patent No. 4,881,677 discloses a baffle cover assembly, in which baffles define a sinuous pathway for the gases generated in the crucible chamber during the exothermic reaction, before they exit at the top of the baffle cover. This known cover cannot be regarded as substantially continuous, but is of the open type. Moreover, gases are not obliged to pass through any filtering means, i.e. are not filtered, before they exit. This is inconsistent with independent claim 1 which requires a filter lining in the cover through which the gases can exit.

Finally, in spite of its open type, this known cover appears not to be retained by its own weight against the forces to which it is subjected by the pressure of the gases. In Fig. 1, two nuts or bolt heads are shown near the lower edge of the cover, one on each side thereof, at a level which lies beneath the level of the upper edge of the crucible. It is believed that these nuts or bolts affix the cover to the crucible. In another embodiment, shown on Figs. 11 and 12, the baffle assembly is hinged to the top of the crucible.

**5. U.S. Patent Application No 4,885,452**

U.S. Patent Application No 4,885,452 discloses, with reference to Fig. 1, a filter assembly in which filtering layers are superimposed in an annular ring received on a tapered annular surface at the top edge of the crucible portion of a combined crucible-mold assembly. This known filter assembly indeed causes the gases to exit through filter means. However, if it is regarded

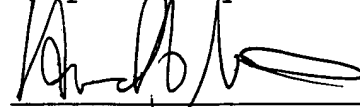
as a cover, it must be regarded as being of the open type, not a substantially continuous, i.e., closed, type as recited in independent claim 1 of the instant application. The filter assembly is believed to be retained by its own weight on the crucible, as is usually the case with open covers. The '452 patent further discloses, with reference to Fig. 2 and Figs. 8 through 11, a hinged cover, hinged to the top of the crucible portion. There is no indication about the way the gases exit in such a case.

**6. U.S. Patent No 4,889,324**

The '324 patent discloses a filter assembly similar to the assembly shown on Fig. 1 of U.S. Patent No 4,885,452, i.e. an assembly which can be regarded as an open cover, retained either by means of its own weight or by means of a flip-up lid (Fig. 9). Fig. 1 of the '324 patent is labelled "Prior Art." The gases merely exit through a side opening in the cover, without being filtered. This is a completely open cover with respect to the exit of the gases.

From the foregoing it is seen that none of the cited references, whether considered separately or in combination, affects the patentability of the claims in the instant application.

Respectfully Submitted,



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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(Use as many sheets as necessary)*

**Complete if Known**

Application Number	10/524,390
Filing Date	
First Named Inventor	Delcroix et al.
Art Unit	
Examiner Name	
Attorney Docket Number	MART0870US

Sheet

of

## U. S. PATENT DOCUMENTS

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## FOREIGN PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				
		DE 198 22 851 A	11-25-1999	Ploetz Rolf		
		EP 0 407 240 A	01-09-1991	Delachaux SA		
		DE 196 35 173 C	04-16-1998	Elektro Thermit GmbH		

**Examiner  
Signature**

Date  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

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